



# Building Department Newsletter



City of Pullman

December 2011

## Special points of interest:

- Snow Load Analysis
- Wood chimneys??
- Expansion Tanks
- Gas Fitter Card Renewal
- City Office's Will Be Closed For the Holidays

## TO SHOVEL OR NOT TO SHOVEL, THAT IS THE QUESTION

One of the many anxieties which follow large snow falls relates to the weight of the snow on building roofs. In the past, many people have called our offices hoping for direction as to whether to shovel the snow from their roofs or not. Unfortunately, whether to remove the snow is a question that varies from structure to structure and is difficult to predict.

One of the first steps in determining whether shoveling is necessary is to determine a weight for the various depths of snow. As anyone who has shoveled snow can attest, the weight of snow can vary greatly. Fresh fallen snow during subfreezing temperatures can weigh as little as 1/10 to 1/20 of water. However, over time, the fine crystals of each snowflake break off and the snow becomes denser, with a grainy, more ice-like texture. As the snow becomes denser, the weight approaches 0.2 of water. For many years people assume that snow weighed 0.192 of water, which was convenient since 0.192 of water equates to one pound per square foot per one inch of snow. The one pound per square foot for every inch of snow was convenient, but was found to be not very conservative for deeper snow depths.

The 2nd edition of the "Snow Load Analysis of Washington" chose to use the Rocky Mountain Conversion Density from the 1986 University of Idaho study entitled "Ground and Roof Snow Loads for Idaho." Data from 3,000 western Soil Conservation Service stations was used to establish the following snow depth-load relationships.

For snow depths 22 inches and less, the snow weight equals 0.9 times the depth of the snow ( $Sw = 0.9d$ ).

For snow depths greater than 22 inches, the snow weight equals 2.36 times the depth of the snow minus 31.9 ( $Sw = 2.36d - 31.9$ ).

For example, the weight of snow 20 inches and 40 inches deep would be calculated as follows:

$$W_{20} = 0.9 \times 20 = 18 \text{ lbs.}$$

$$W_{40} = (2.36 \times 40) - 31.9 = 62.5 \text{ lbs.}$$

As shown above, the depth-to-load conversion relationships allow you to quickly estimate how much weight is represented by the snow on your roof. With a method of determining how much snow weighs, your next question is probably how much snow load are roofs designed for? Since the 1970s, most houses have been designed to support an equally distributed snow load of 30 pounds per square foot, which is about 26 inches in depth.

Even with a snow-to-depth weight correlation, there are still many variables to be considered for each structure, such as the wind exposure, slope of the roof and roofing material. Structures designed for 30 pound snow loads may support depths deeper than 26 inches due to the safety factors incorporated into light framing construction and the large variety of snow densities.

When deciding whether it is necessary to remove snow from a roof, several factors should be considered. Can the snow be safely removed? Unbalanced snow removal should be avoided to minimize the potential for damage. Care should be taken to not shovel all the way down to the roof shingles, since they will likely be cold, brittle, and susceptible to damage.



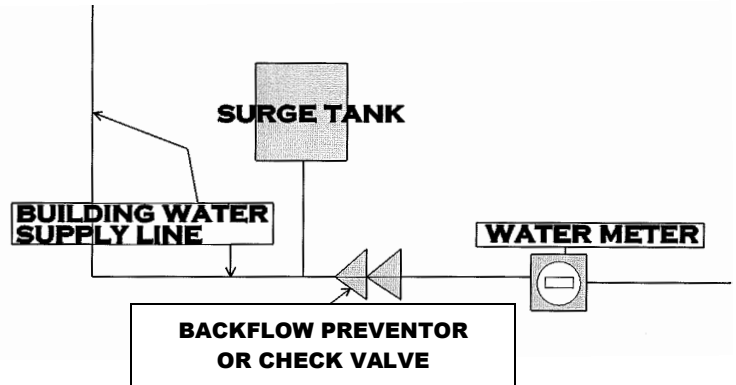
In 1648  
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construction of  
wood chimneys.  
This was  
followed by the  
appointment of  
what?

Answer on Page 2

## Expansion Tanks Required

In Pullman, the City Water Utility Code Chapter 10A.40 requires all buildings (other than one and two family dwellings unless a special hazard exists) to be equipped with a back flow prevention device to safeguard the public water supply.

The 2009 Uniform Plumbing Code, Section 608.3, also requires an approved, listed, adequately sized **EXPANSION TANK** or other approved device having a similar function that will control thermal expansion to be installed on any building water supply line that also has a check valve, backflow preventer or any other normally closed device that would prevent the dissipation of a buildings water pressure back into the City water main. The expansion tank or other approved device must be installed on the building side of the back flow device or check valve and be sized and installed in accordance with the manufacturers recommendations.



### ANSWER TO TRIVIA

Chimney  
Inspectors!



### Gas Fitter Card Renewal

2011 Gas Fitter's License cards expire January 16, 2012. January 16 is the last day to renew gas fitter cards for \$7.50. New licenses and renewals after January 16, 2012 will be \$15 per license. The City of Pullman has reciprocity with Spokane, Moscow, Lewiston and Clarkston. A Pullman Gas Fitter's License will be issued to holders of current licenses in those cities. If you have questions, please contact Greg Colvig at (509) 338-3287 or [greg.colvig@pullman-wa.gov](mailto:greg.colvig@pullman-wa.gov)

## CITY OFFICES WILL BE CLOSED FOR HOLIDAYS

MONDAY

DECEMBER 26, 2011

for CHRISTMAS



MONDAY

JANUARY 2, 2012 for

NEW YEARS DAY